



Concept Study Guidelines and Criteria: Technical, Management, and Cost (TMC) Evaluation

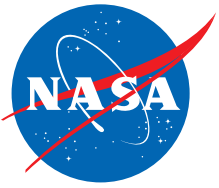
Behzad Raiszadeh

Acquisition Manager and TMC Chair

NASA Science Office for Mission Assessments (SOMA)

September 29, 2022



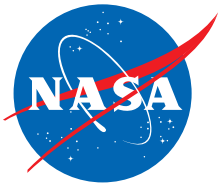


Guidelines and Criteria for the Phase A Concept Study

Concept Study
Guidelines and
Requirements

A draft of the ***Guidelines and Criteria for the Phase A Concept Study*** document is in the main 2021 Astrophysics Explorers page

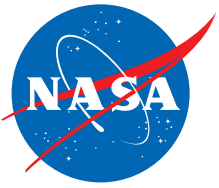
- <https://explorers.larc.nasa.gov/2021APMIDEX/>
- The Guidelines document contains instructions for preparation of the Concept Study Report (CSR).
- Requirements are designated as CS-1 to CS-88.
- Note the following language from the document:
 - All program constraints, guidelines, definitions, and requirements specified in the AO or the PEA are applicable to the CSR, except as noted therein.
 - Only new requirements and modified requirements appear in the Guidelines and Criteria for the Phase A Concept Study document.
 - In case of conflict between the SMEX AO, the SALMON-3 AO, or the PEA and the CSR Guidelines, the CSR Guidelines take precedence.
 - **Each CSR must be a self-contained document** and must not refer to information contained in the Step 1 proposal.



Guidelines and Criteria for the Phase A Concept Study

Concept Study
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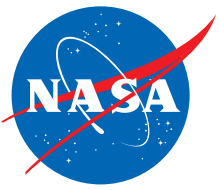
- The format of the CSR is specified in Sections A through L.
- The CSR Structure and Page Limits are specified on page 11.
 - 5 pages for Fact Sheet and Executive Summary.
 - 34 pages for Science Investigation (**highlight changes from Step 1**).
 - Sections F through J: 110 for full mission **or** 84 for missions of opportunity
 - + 2 pages for each additional separate, non-identical instrument or flight element
 - + 6 pages for SC if proposed
 - + 6 pages for SEO if proposed.
 - No page limit for Cost Proposal + Justification and Cost Proposal for optional SEO.
 - No page limit for Section L, Appendices, on specific topics.
 - Appendices should not be renumbered.



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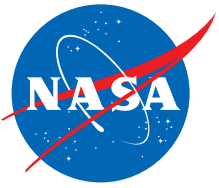
Concept Study
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- All CSR required files must be submitted electronically via NASA box **NLT 4 p.m. ET, June 1, 2023. [See CS-6 for details]**
- Electronic CSRs shall be unlocked, bookmarked, and searchable PDF file(s) – limited to the main body of the CSR, all tables and appendices – as well as all other required electronic files as specified in CS-3 (Schedule, MEL, all cost tables, etc.).
- Materials identified as subject to U.S. export laws and regulations, in accordance with the MDEX AO Section 5.8.3 or SALMON-3 AO Section 5.9.3, must be marked.



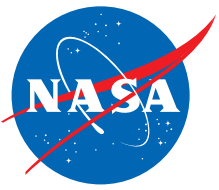
Modified Criterion C Factors

- Factor C-4, Adequacy and robustness of the management approach and schedule, including the capability of the management team.
 - Risk management aspects moved to new Factor C-6.
 - Addition of subfactor evaluating the effect of the small business subcontracting plan including small disadvantaged businesses on the management approach and schedule
- Factor C-6, Adequacy of the risk management plan.
 - Includes risk management aspects of Step-1 Factor C-4, Adequacy and robustness of the management approach and schedule, including the capability of the management team.
- Factor C-7, Ground systems.
 - assessment of the proposed mission operations plans, facilities, hardware and software, processes, and procedures.
- Factor C-8, Approach and feasibility for completing Phase B.
 - Assessment of the completeness of plans.
 - Assessment of the adequacy of the approach.



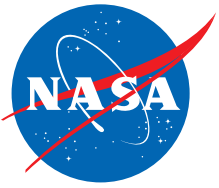
Career Development

- Career Development
 - The Science Panel and TMC panel will provide comments to NASA regarding the extent to which the proposed investigation provides career development opportunities to train the next generation of engineering and management leaders.
 - While these comments will not be considered in the evaluation, they may be considered during down-selection.



Items Deferred at Step 1

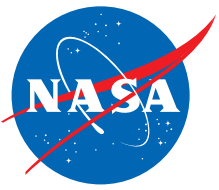
- Detailed disposal plan
- Science Enhancement Option and its cost
- Independent Verification and Validation (IV&V) of Software is in the AO but not required, however note requirement CS-22 about V&V of software.
- Costing of Conjunction Assessment Risk Analysis
- Requirements for real year dollar costs
- Student Collaboration
- Space Systems Protection Plans
- Ground Systems and Facilities



List of Participants, and Table of CS Requirements

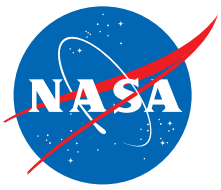
Requirement CS-4. Provide a list of the individuals who have participated in the concept study (e.g., individuals who worked on the CSR, any CSR contributor, Red Team member, reviewer, etc.) and/or whom you are proposing to provide work should the mission be down-selected. Additionally, provide a list of all organizations named in the CSR, or providing developmental or research services, including the lead organization, subcontractors, vendors and contributing organizations who have an interest in the mission. Provide a draft list of the participants as a Microsoft Excel spreadsheet document to the Point Of Contact [**Dr. Linda Sparke**] (POC, AO Section 6.1.5 or PEA Section 9) three months prior to the due date of the CSR [**March 1, 2022**]. Use the Microsoft Excel spreadsheet template that has been posted to the Program Library. This list is to be updated and a final revision shall be included in a separate electronic file with the CSR submission.

Requirement CS-5. Create a separate document that contains a table with all of the requirements (Requirement CS-1 through Requirement CS-88 and the page, section, or table number that is the main place in the CSR where the requirement is addressed. Provide this table as a PDF document along with the CSR submission.



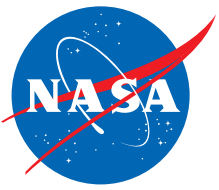
Phase B Plan (CSR Section I)

Once entering Phase B, Explorers projects will be subject to the same requirements as all other NASA missions. Note that the CSR only satisfies some of the KDP-B deliverable requirements, and that the balance will have to be developed early in Phase B (consistent with Section 2.2.7.1 in NPR 7120.5E: “In a two-step AO process, projects are down-selected following evaluation of concept study reports and the down-selection serves as KDP B. Following this selection, the process becomes conventional, with the exception that products normally required at KDP B that require Mission Directorate input or approval will be finished as early in Phase B as feasible.”).



L.14: Additional Cost Data to Assist Validation (Optional)

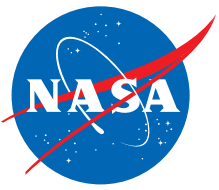
In addition to the specific cost table data requested in the Cost Proposal (Section J), investigation teams may also provide any additional costing information/data that they feel will assist NASA to validate the project's proposed costs. Vendor quotes, cost estimates, rationale for design heritage cost savings, are all examples of data that can be included here. Input and output files for any publicly available cost model may be included on each submitted CD/DVD, if accompanied by discussion in this appendix.



New Requirements not given in the AO

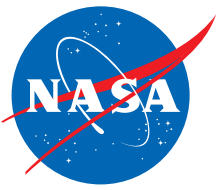
L.18 Cyber Security: With the rise in cyberattacks on all computer systems, NASA needs to be proactive in protecting all flight and ground assets. To protect mission IT assets, NASA requires projects to develop a System Security Plan (SSP) using the NIST 800-53 controls as a basis. The requirement to follow NIST 800-53 flows from NPR 2810.1. The SSP begins with a description of the mission, including all end-to-end data flows, and uses NIST 800-series documents to develop the content of the SSP. *To the extent that this is a new requirement, the additional costs associated are outside the AO and PEA Cost Cap.*

Part III, Conjunction Assessment Risk Analysis (CARA): There are likely additional requirements on NASA missions to satisfy CARA requirements in 7120.5F. CARA requirement in 7120.5F are referenced and defined in NASA Interim Directive (NID) 7120.132. This is in response to near-Earth space environment becoming increasingly congested. No new requirements are defined in step-2, but costs may be higher downstream. *Funds needed to meet additional CARA requirements will be outside of the cost cap.*



Site Visits

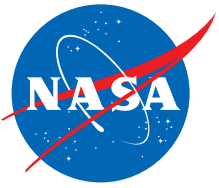
- Site visits with oral briefings will be used to clarify implementation details and commitments.
- Site visits are anticipated ~4-5 months after the CSR due date at location sites to be coordinated between the PI/Proposal Team and NASA HQ/SOMA.
- The Site visit durations will be up to 7 hours plus up to 1 hour for an optional tour/demonstration.
- All site visit presentations/briefings should be in a plenary session with all Evaluation Team members attending - no splinter sessions.
- Written significant weaknesses, questions, and/or requests for information will be provided to the PI/Proposal Team 8 days before the site visit. All teams will have the same lead time.
- Some questions will require an early response, 2 days before the site visit.
- Any additional information provided to NASA by the investigation team at the site visit, in response to the NASA-identified weaknesses and questions, or in response to NASA requests for additional information, will be treated as updates and clarifications to the CSR.



LSP, Rideshare and ISS Points of Contact

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- Launch Services Program (LSP) Contact for MIDEXs and for MO Rideshare:
Shaun Daly
shaun.daly@nasa.gov
321-867-8400
- International Space Station (ISS) Point of Contact:
Steven Huning
ISS Research Integration Office
steven.w.huning@nasa.gov
832-248-1034
- Conjunction Analysis Risk Assessment (CARA):
Lauri Newman
lauri.k.newman@nasa.gov
301-286-3155



Additional and Updated Documents

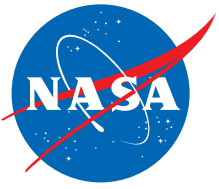
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Updated:

- Guidelines and Criteria for the Phase A Concept Study, dated September 19, 2022 in <https://explorers.larc.nasa.gov/2021APMIDEX/>

Additional documents in the Program Library:

- Space Systems Protection documents FIPS PUB 140-2 and FAQ
- Sample of International Agreement examples for Juno and MSL
- Mission Definition Requirements Agreement (MDRA) examples for IBEX and IRIS
- Program Level Requirements Appendix (PLRA) examples for NuSTAR and IBEX
- Level 1/Level 2 Requirements Presentation from PI Forum 8
- FY 20 NASA Inflation Tables for FY22
- CSR Conflicted Party List Template



QUESTIONS?